TracVision® BY KVH INDUSTRIES

TracVision M5/M7
Control Panel Configuration

TracVision M5/M7 User's Guide

TracVision M5/M7

MultiSat Control Panel Configuration

User's Guide

This user's guide provides all of the basic information you need to operate, set up, and troubleshoot the TracVision M5/M7 satellite TV antenna system. For detailed installation information, please refer to the *TracVision M5/M7 Installation Guide*.

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If you have any comments regarding this manual, please e-mail them to manuals@kvh.com. Your input is greatly appreciated!

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1. Introduction

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1

Using this Manual

This manual provides complete operation, setup, and troubleshooting information for your TracVision system, as well as wiring diagrams for various TracVision M5/M7 configurations.

Who Should Use This Manual

The **user** should refer to the "Operation" chapter to learn how to operate the system.

The **user**, **installer**, or **servicing technician** should refer to the "Settings" chapter for information on configuring the system and the "Wiring Diagram" appendices for information on connecting additional receivers.

The **installer** or **servicing technician** should refer to the "Advanced Settings and Functions" appendix for information on advanced setting and operational procedures.

The **user** and/or **servicing technician** should refer to the "Troubleshooting" chapter to help identify the cause of a system problem.

Notifications Used in this Manual

This manual uses the following notifications to call attention to important information:

CAUTION

This is a danger, warning, or caution notice. Be sure to read these carefully to avoid injury!

IMPORTANT!

This is an important notice. Be sure to read these carefully to ensure proper operation and configuration of your TracVision system.

NOTE: *This is a Note. Notes contain useful information about system settings.*

TIP: *This is a Tip. These contain helpful information, allowing you to get the most out of your TracVision system.Typographical Conventions*

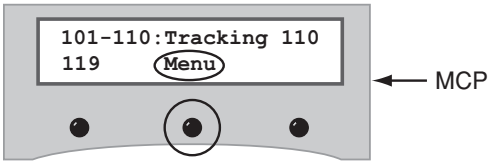
This manual uses the following typographical conventions:

Text Example	Description
`<Sat Name>` `###`	Text in brackets or the pound sign (#) indicates a variable portion of the MCP display
HALT	Bold text in capital letters indicates a command to be entered via a PC
X	Bold text in *italicized* capital letters indicates a variable portion of a command to be entered via a PC
"Turning the System On/ Off" on page 14	Cross-reference to another chapter in the manual or to a website

MCP (MultiSat Control Panel) Interface Conventions

When instructions indicate to select a specific MCP menu option, press the MCP button located directly beneath the menu option.

Figure 1-1 Example of MCP Menu Option and Corresponding Button.



Related Documentation

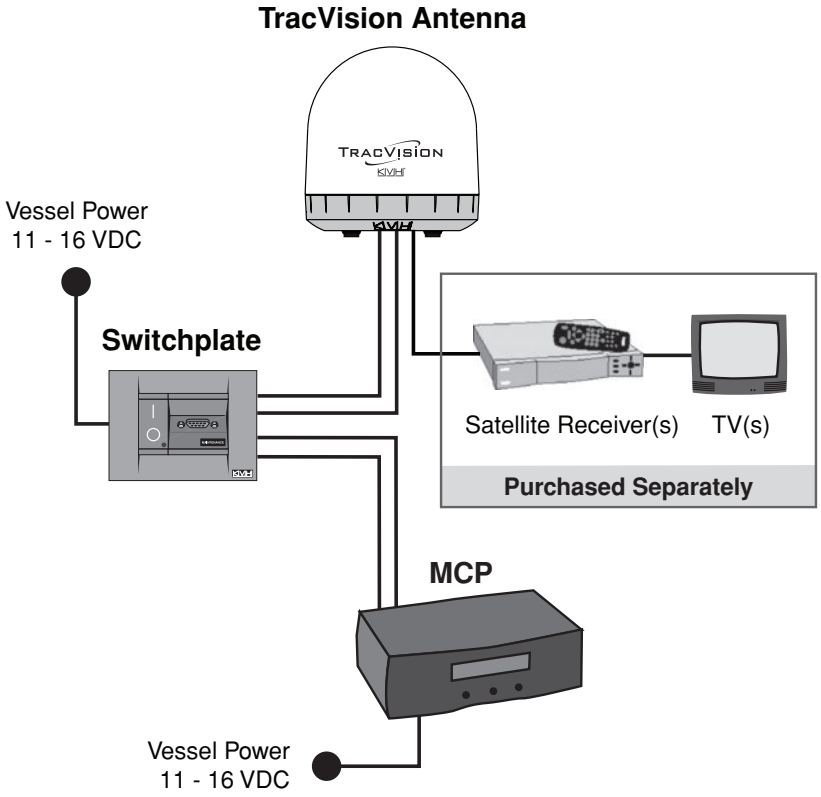
In addition to this User's Guide, the following documents are provided with your TracVision system:

Document	Description
Installation Guide	Complete product installation instructions
Product Registration Form	Details on registering the product
Warranty Statement	Warranty terms and conditions
Contents List	List of every part supplied in the kit

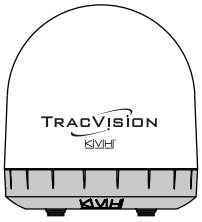
System Overview

Your TracVision system is a state-of-the-art, actively stabilized antenna system that delivers live satellite TV to your vessel's audio/video entertainment system. A basic system is illustrated below. TracVision M5 receiver wiring diagrams are provided in *"Appendix D" on page 87*. TracVision M7 receiver wiring diagrams are provided in *"Appendix E" on page 93*.

Figure 1-2 TracVision System Diagram (Basic Installation)



System Components



Antenna Unit
The antenna unit houses the antenna positioning mechanism, LNB (low noise block), and control elements within a radome. Weathertight connectors join the power, signal, and control cabling from the belowdecks units.

Switchplate
The switchplate controls power to the antenna and MCP (MultiSat Control Panel) via the On/Off switch.

MCP (MultiSat Control Panel)
The MCP is the system's user interface, providing access to the system and its functions through an LCD and three buttons. The MCP serves as the vessel's junction box, allowing the system to use vessel power and supply and receive data to/from the TracVision M5/M7. The MCP also allows tracking of up to three satellites and is compatible with DIRECTV HD equipment and service.

System Features

Your TracVision M5/M7 system uses integrated DVB technology to quickly acquire and track the correct satellite, switch between satellites, and send TV signals to the receiver.

In-motion Tracking

The TracVision M5/M7 system uses a state-of-the-art actively stabilized antenna system. Once the satellite is acquired, the system's internal gyros continuously measure the heading, pitch, and roll of your vessel and send commands to the antenna motors, keeping the antenna pointed at the satellite at all times - even while you're on the move!

TriSat Capability

Your TracVision M5/M7 is capable of tracking three selected satellites, as long as the antenna is located within the selected satellites' coverage area. During installation, your TracVision system should have been set up to track your desired satellites, allowing you to switch between your selected satellites quickly and easily.

DIRECTV HD (High-Definition) Capability (Circular Version Only)

The TracVision M5/M7's MCP enables DIRECTV HD service, and is compatible with DIRECTV HD equipment and service.

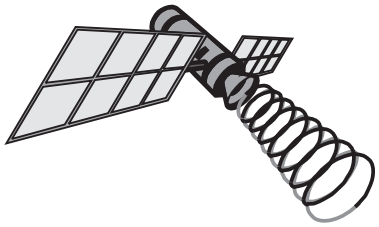
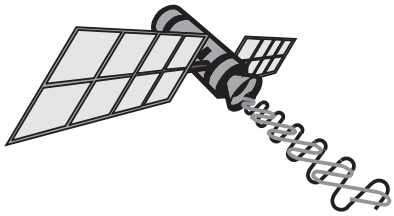
Satellite Library

The TracVision M5/M7 includes a pre-programmed satellite library of the most popular satellite services, offering a wide variety of satellite services to choose from. Using a PC, you can also add up to two additional satellites of your choice to the satellite library.

Circular and Linear Versions

Your TracVision system is configured for either circularly polarized satellite signals (North America) or linearly polarized satellite signals (Europe or Latin America). *Figure 1-3* illustrates the difference between these two polarizations.

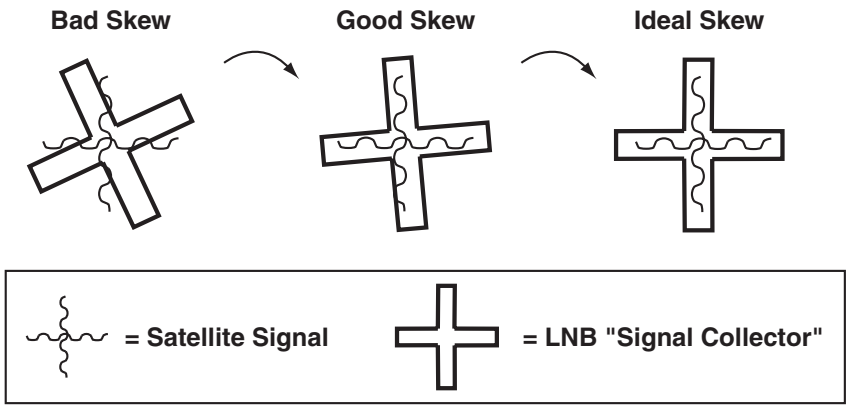
Figure 1-3 Polarizations of Satellite Signals

Circular	Linear
	
Signals transmitted in two "corkscrew" patterns, one running clockwise and one running counter-clockwise	Signals transmitted in vertical and horizontal "waves" offset exactly 90° from each other

LNB Skew Angle

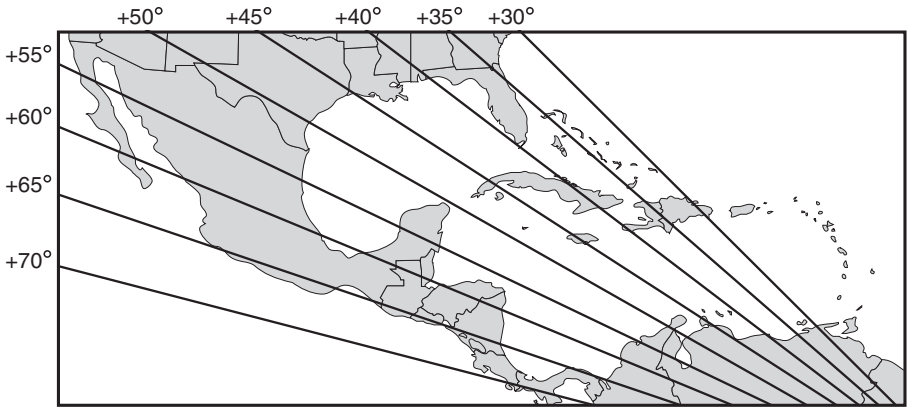
Since linear satellite signals are oriented in a precise cross pattern, the TracVision antenna's receiving element, called an LNB (low-noise block) must be oriented in the same way to optimize reception. This orientation adjustment is referred to as the LNB's "skew angle." *Figure 1-4* illustrates how skew determines the amount of signal the LNB collects. The more signal, the better the reception.

Figure 1-4 How Skew Works



The correct skew setting varies depending on your geographic location, since the orientation of your antenna to the satellite changes as you move. For example, as shown in *Figure 1-5*, if your antenna is tracking the PAS 9 satellite for Sky Mexico programming, the ideal skew setting ranges from +30 to +70, depending upon your location within the satellite's coverage area.

Figure 1-5 Approximate Skew Settings for the PAS 9 Satellite



For complete details about adjusting the LNB's skew angle, see *"Adjusting the Skew Angle" on page 45*.

2. Operation

This chapter explains everything you need to know to operate the TracVision system.

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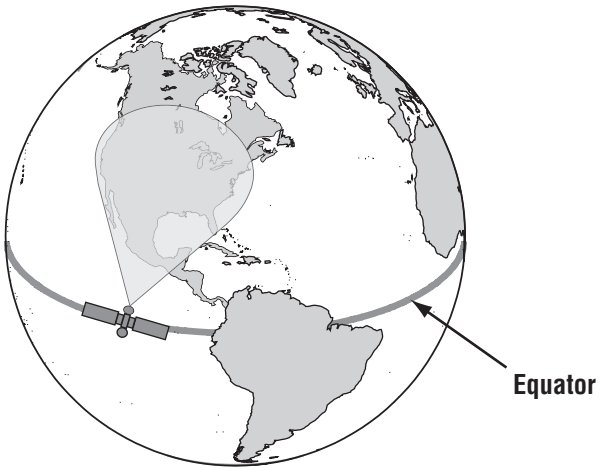
2

Receiving Satellite TV Signals

Television satellites are located in fixed positions above the Earth's equator and beam TV signals down to certain regions of the planet (not worldwide). To receive TV signals from a satellite, you must be located within that satellite's unique coverage area.

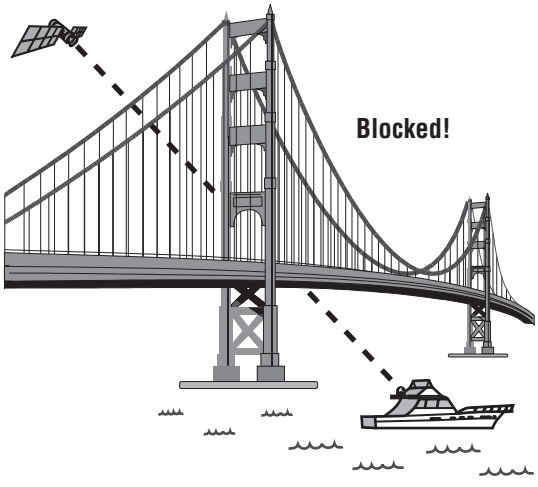
TIP: *For your convenience, KVH provides links to several websites that offer satellite coverage information. Simply visit our website at* ***www.kvh.com/footprint****.*

Figure 2-1 Location and Coverage Area of DIRECTV 101 Satellite



In addition, since TV satellites are located above the equator, the TracVision antenna must have a clear view of the sky to receive satellite TV signals. Anything that stands between the antenna and the satellite can block the signal, resulting in lost reception. Common causes of blockage include boat masts, trees, buildings, and bridges. Heavy rain, ice, or snow might also temporarily interrupt satellite signals.

Figure 2-2 Example of Satellite Blockage



Turning the System On/Off

Since power to the system is controlled by the switchplate, you can turn the TracVision system on or off using the switchplate.

Turning On the System

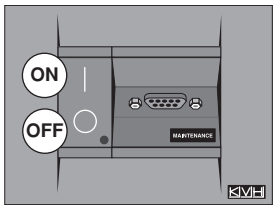
Follow the steps below to turn on your TracVision system.

1. Make sure the antenna has a clear view of the sky.
2. Turn on your satellite TV receiver and TV.

> ***IMPORTANT!***
>
> Avoid turning the vessel or changing channels for one minute after turning on the system.

3. Set the switchplate's Power switch to the on (up) position.

Figure 2-3 Switchplate Power Switch



4. Wait one minute for system startup.

Turning Off the System

Follow the steps below to turn off your TracVision system.

1. Set the switchplate's Power switch to the off (down) position.
2. Turn off your satellite TV receiver and TV.

Changing Channels and Switching Between Satellites (Linear Version Only)

Since some channels might be located on another satellite, changing channels might require switching to another selected satellite. During installation, your TracVision M5/M7 system should have been set up to track the satellite(s) of your choice and the channel guides for your selected satellite service should have been downloaded.

Your TracVision system can track up to three satellites, stored in memory as Satellite A, Satellite B, and Satellite C. If your system is set up to track three satellites, see *"Automatic TriSat Mode"* or *"Manual Trisat Mode" on page 17* for more information. If your system is set to track one or two satellites, see *"DualSat Mode" on page 17*.

IMPORTANT!

To ensure proper operation, the receiver(s) must be set up for the same satellites, and in the same order, they are set up in the antenna:

Antenna Satellite	Receiver Satellite	DiSEqC Setting
Sat. A	Alternative 1 or A	DiSEqC 1
Sat. B	Alternative 2 or B	DiSEqC 2
Sat. C	Alternative 3 or C	DiSEqC 3

NOTE: *TracVision M7 systems with more than four receivers require a multiswitch. Installation of a multiswitch requires using Manual TriSat Mode or DualSat Mode.*

TIP: *The primary receiver controls satellite selection; all other receivers can only receive channels carried on the satellite selected by the primary receiver. The primary receiver is the receiver connected to the antenna's RF1 connector.*

TIP: *If you want to change which satellites the system tracks, see* *"Setting the MCP to Track Different Satellites (Linear Version Only)" on page 27*.

Automatic TriSat Mode

In Automatic TriSat Mode, the antenna automatically switches between satellites within the selected TriSat group as the user changes channels on the receiver's remote control.

NOTE: *If you use the MCP to manually switch satellites, automatic satellite switching is disabled until the system is turned off, then turned back on. For more information on turning the system on/off, see* ***"Turning the System On/Off" on page 14***.

TIP: *TriSat groups and the satellites within each TriSat group are shown in* ***Figure 2-5***.

Figure 2-4 Automatic TriSat Mode Display

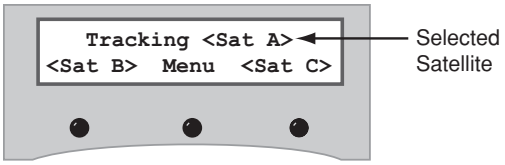


Figure 2-5 TriSat Groups

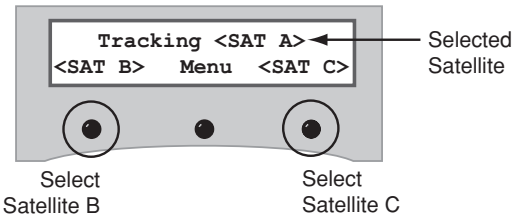
TriSat Group	Satellites
Europe WB (EWB)	Hotbird WB
	Astra 1
	Astra 2S
Europe (EUR)	Hotbird
	Astra 1
	Astra 2S
Scandinavia (SCN)	Hotbird WB
	Sirius
	Thor

Manual Trisat Mode

When the TracVision M5/M7 system is set to Manual TriSat Mode, a TriSat group is selected, allowing you to switch between the satellites within the group with a single button press.

TIP: *TriSat groups and the satellites within each TriSat group are shown in* *Figure 2-5 on page 16*.

Figure 2-6 Switching Satellites Using Manual TriSat Mode

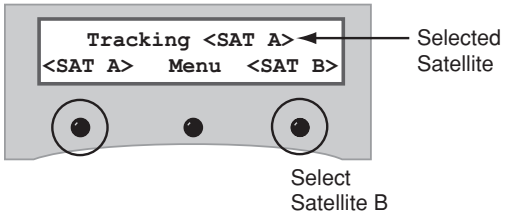


DualSat Mode

Most TracVision M5/M7 system configurations allow automatic satellite switching in DualSat Mode. When automatic switching is enabled, satellite switching occurs automatically while the user changes channels using the receiver's remote control. You can also use the MCP to manually switch between your selected pair of satellites with a single button press.

NOTE: *If you use the MCP to manually switch satellites, automatic satellite switching is disabled until the system is turned off, then turned back on. For more information on turning the system on/off, see* *"Turning the System On/Off" on page 14*.

Figure 2-7 Switching Satellites Using DualSat Mode



Circular Version Only

Changing Channels and Switching Between Satellites (Circular Version Only)

Since some channels might be located on another satellite, changing channels might require switching to another selected satellite. During installation, your TracVision M5/M7 system should have been set up to track the satellite(s) of your choice and the channel guides for your selected satellite service should have been downloaded.

Your TracVision system is set up to track up to three satellites, stored in memory as Satellite A, Satellite B, and Satellite C. If you are a DIRECTV HD subscriber, see *"Automatic TriSat Mode"* or *"Manual TriSat Mode" on page 19* for more information. If your system is set to track one or two satellites, see *"DualSat Mode" on page 20*.

NOTE: *TracVision M5/M7 systems with more than four receivers require a multiswitch. Installation of a multiswitch requires using Manual TriSat Mode or DualSat Mode. For information on configuration requirements, refer to the wiring diagram appendices located at the back of this manual.*

TIP: *The primary receiver controls satellite selection; all other receivers can only receive channels carried on the satellite selected by the primary receiver. The primary receiver is the receiver connected to the antenna's RF1 connector.*

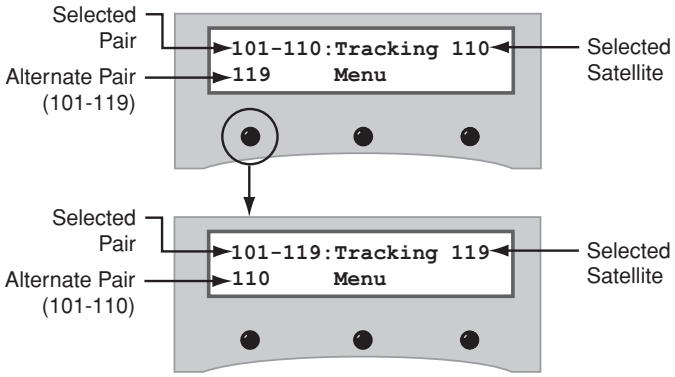
TIP: *If you want to change which satellites the system tracks, see* *"Setting the MCP to Track Different Satellites (Circular Version Only)" on page 37*.

Automatic TriSat Mode

In Automatic TriSat Mode (see *Figure 2-8 on page 19*), the antenna automatically switches between a pair of DIRECTV satellites as the user changes channels on the receiver's remote control. The user sets the MCP to automatically switch between either the DIRECTV 101-110 satellite pair or the DIRECTV 101-119 satellite pair.

NOTE: *Switching between the DIRECTV 119 and 110 satellites requires pressing the ADCU button (see Figure 2-8).*

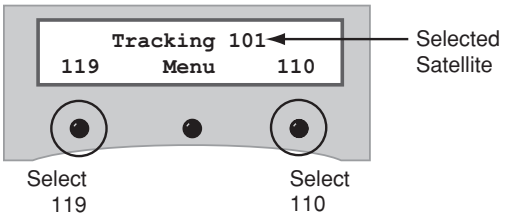
Figure 2-8 Switching Satellite Pairs Using Automatic TriSat Mode



Manual TriSat Mode

In Manual TriSat Mode, the user can switch between the DIRECTV 101, 110, and 119 satellites with a single button press.

Figure 2-9 Switching Satellites Using Manual TriSat Mode

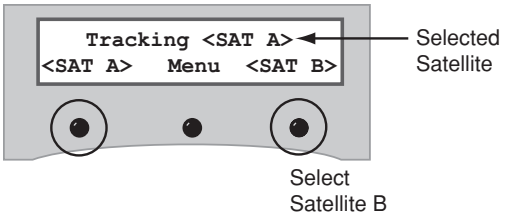


DualSat Mode

Most TracVision M5/M7 system configurations allow automatic satellite switching in DualSat Mode. When automatic switching is enabled, satellite switching occurs automatically while the user changes channels using the receiver's remote control. You can also use the MCP to manually switch between your selected pair of satellites with a single button press.

NOTE: *If you use the MCP to manually switch satellites, automatic satellite switching is disabled until the system is turned off, then turned back on. For more information on turning the system on/off, see* ***"Turning the System On/Off" on page 14****.*

Figure 2-10 Switching Satellites Using DualSat Mode



NOTE: *At this time, DISH Network supports only the standard-definition model 311 receiver for mobile use. All other receiver models have been designated for home use only; DISH Network subscribers must use DualSat Mode.*

DIRECTV HD Subscribers

This section contains operational information and tips specific to DIRECTV HD service.

How to Tell If You are On the Wrong Satellite

Since the DIRECTV program guide does not indicate which channel is on which satellite, how do you know which satellite is carrying the channel you wish to watch? Different receivers behave differently. However, there are generally four ways to tell if the channel that you selected is carried on another satellite:

- The wrong programming appears on the TV
- "Channel Not Available" appears on the TV
- "Buy Now" appears on the TV
- "Program Not Available in this Area" appears on the TV

If one of these situations occurs, simply switch to another satellite.

TIP: *For your convenience, KVH provides a list of HDTV channels and the DIRECTV satellites that carry them at* ***www.kvh.com/HDlineup****. KVH also provides a free notification service. If you sign up for this service, KVH will e-mail you whenever the HDTV lineup changes.*

TIP: *For more information on switching satellites, see* ***"Changing Channels and Switching Between Satellites (Circular Version Only)" on page 18.***

DIRECTV HD Activation and Availability

Your DIRECTV HD receiver must be configured as an "Oval, 3, LNB" dish type and be activated for HD service. Refer to your selected receiver's user manual for configuration instructions.

If you are unable to receive high-definition channels on your HD receiver, your receiver might not be configured correctly or activated for HDTV service. KVH can help you activate your DIRECTV HD service. Call KVH's Activation Department at:

1-888-584-4163
(Monday-Friday, 8:30 am - 5:00 pm ET)

TIP: *High-definition channels are not included with the basic DIRECTV package; you need to request that these special channels be added to your programming package. Premium HD channels, such as HBO HD, must be ordered separately.*

Product Care

Please consider the following antenna care guidelines for maintaining peak performance:

- Periodically wash the exterior of the antenna dome with fresh water and mild detergent. Avoid harsh cleansers and volatile solvents (such as acetone) and do not spray the dome directly with high-pressure water.

- If you wish to paint the dome, use only non-metallic automotive paint without a primer coat. Any paint that contains metal will block satellite signals and impair reception.

3. Settings

This chapter explains system settings and how to modify them using the MCP.

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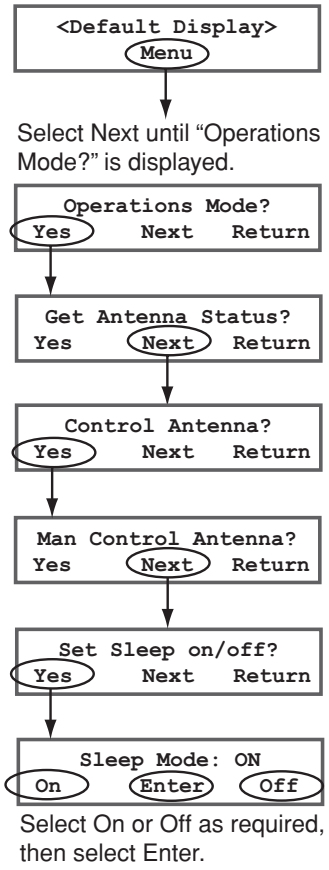
Changing the Sleep Mode Setting

When the vessel has come to a stop and holds its position for one minute (e.g., at a dock), the antenna unit enters Sleep Mode, which locks the antenna in place to conserve power. As soon as the vessel moves beyond a 1° - 2° window or the signal level changes significantly, Sleep Mode automatically turns off and the system begins tracking the satellite again.

KVH recognizes that some customers might not want to take advantage of this convenient feature. In this case, it is possible to disable Sleep Mode.

Use the flowchart in *Figure 3-1* if you wish to disable Sleep Mode, or if you wish to restore the original Sleep Mode setting.

Figure 3-1 Setting Sleep Mode On/Off



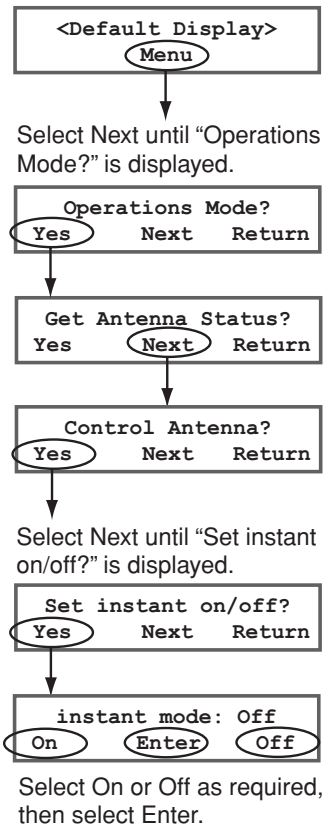
Changing the Instant On Setting

When Instant On is enabled, the antenna can immediately receive signals if the vessel has not moved since the antenna was last shut off. However, if the system is turned off, and then the vessel moves after last acquiring the satellite via Instant On, the antenna will undergo its standard initialization process once it is turned back on. This results in a brief delay.

TIP: *The default Instant On setting is off.*

Use the flowchart in ***Figure 3-2*** if you wish to enable Instant On, or if you wish to restore the original setting.

Figure 3-2 Instant On/Instant Off



Setting the MCP to Track Different Satellites (Linear Version Only)

If you wish to change which satellites your TracVision M5/M7 system tracks, you must perform the following:

1. Select a tracking mode
2. Update latitude and longitude data

3a. Set up Automatic/Manual TriSat Mode

3b. Set up DualSat Mode

4. Determine the skew angle (DualSat Mode Only)
5. Adjust the skew angle

TIP: *Be sure to only install satellites that your TracVision M5/M7 can track in your geographic location. For your convenience, KVH provides links to several websites that offer satellite coverage information. Simply visit our website at* ***www.kvh.com/footprint.***

Step 1 - Select a Tracking Mode

Automatic/Manual TriSat Mode

If you wish to track three satellites, the MCP must be set to a TriSat Mode. When a TriSat Mode is selected, you can switch between any three satellites within the selected TriSat group. *Figure 2-5 on page 16* lists the TriSat groups and satellites within each group.

DualSat Mode

Most TracVision M5/M7 system configurations allow automatic satellite switching in DualSat Mode. When automatic switching is enabled, satellite switching occurs automatically while the user changes channels using the receiver's remote control. You can also use the MCP to manually switch between your selected pair of satellites with a single button press. In DualSat Mode, you can set up the system to track any two satellites from the linear satellite library (see *Figure 3-3 on page 28*).

Linear Version Only

Figure 3-3 Linear Satellite Library

Satellite Location	Installation Name
26.0° E	ARABSAT
19.2° E	ASTRA1
28.2° E	ASTRA2N
28.2° E	ASTRA2S
7.0° E	EUTEL_W3A
30.0° W	HISPASAT
13.0° E	HOTBIRD
13.0° E	HOTBIRDWB
7.0° W	NILESAT
160.0° E	OPTUSB1*
156.0° E	OPTUSC1
58.0°W	PAS_9
110.5° E	SINOSAT*
5.0° E	SIRIUS
0.8° W	THOR
42.0° E	TURKSAT1C

**NOTE:* *Reception of these satellites requires additional hardware. Please contact your local KVH-authorized dealer or KVH Technical Support for details.*

NOTE: *If the satellite you wish to track is not listed, you can use a PC to add one or two special user-defined satellites. See* ***"Appendix C" on page 77*** *for details.*

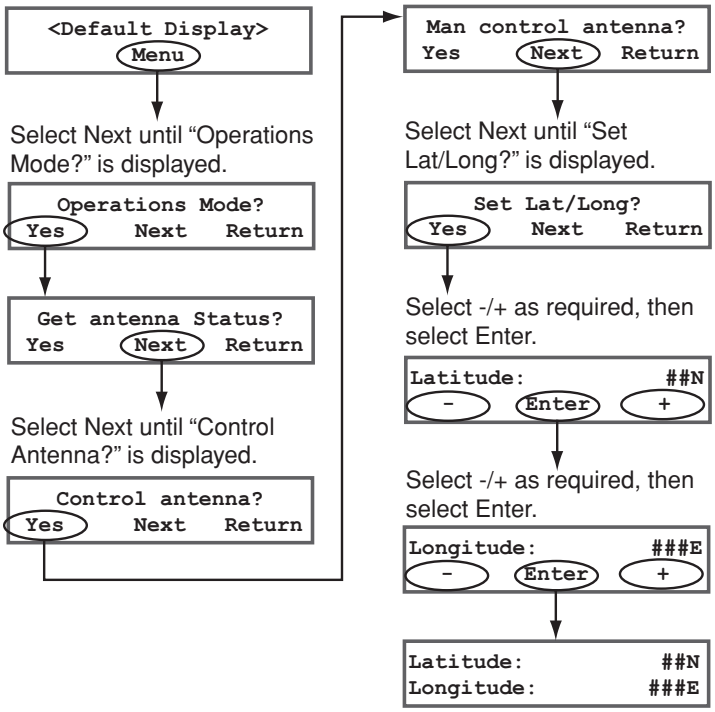
Step 2 - Update Latitude and Longitude Data

Use the flowchart in ***Figure 3-4*** to update your latitude and longitude data.

TIP: *For your convenience, you can determine your approximate latitude and longitude using the Position Grids provided in* ***"Appendix B" on page 73****.*

NOTE: *If you are setting the MCP to track satellites using TriSat Mode, skip to* ***"Step 3a - Set Up Automatic/Manual TriSat Mode" on page 30****.*

Figure 3-4 Updating Latitude and Longitude



Linear Version Only

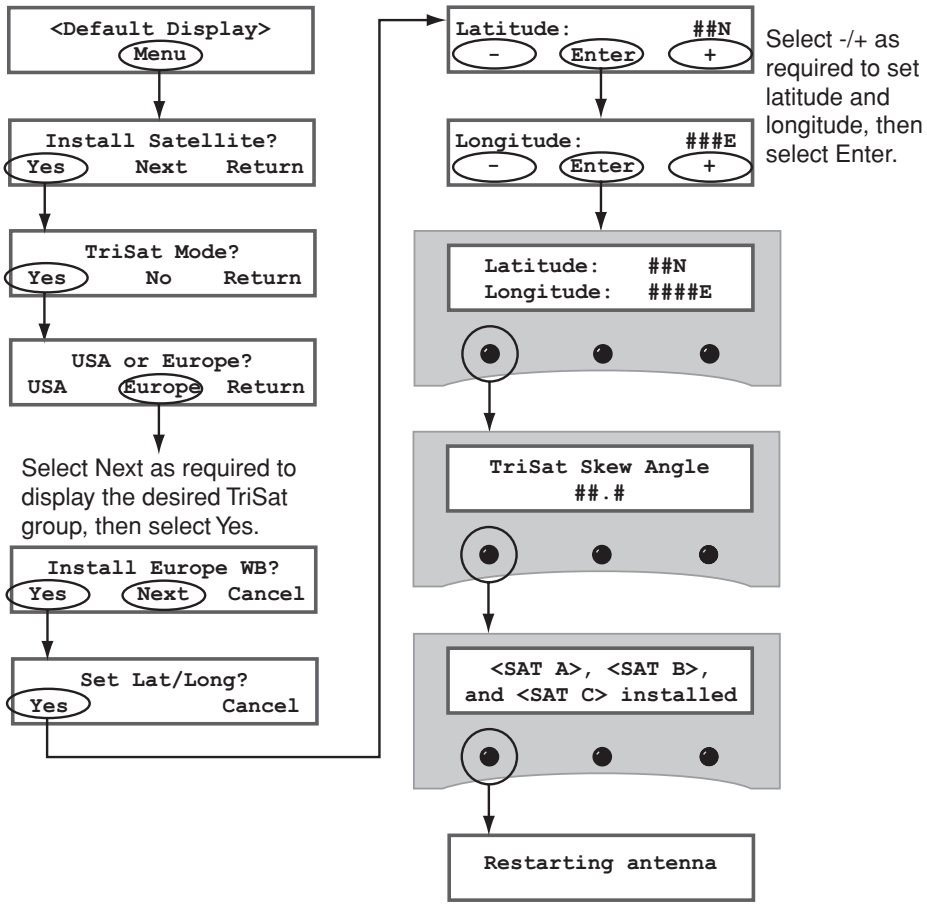
Step 3a - Set Up Automatic/Manual TriSat Mode

Use the flowchart in ***Figure 3-5*** to set the MCP to track satellites in Automatic/Manual TriSat Mode.

TIP: *A complete list of TriSat groups and the satellites in each group is provided in* ***Figure 2-5 on page 16****.*

NOTE: *Be sure to record the TriSat skew angle displayed in this procedure for later use. The TriSat skew angle is the average skew angle for the satellites within the selected TriSat group.*

Figure 3-5 Setting Automatic/Manual TriSat Mode

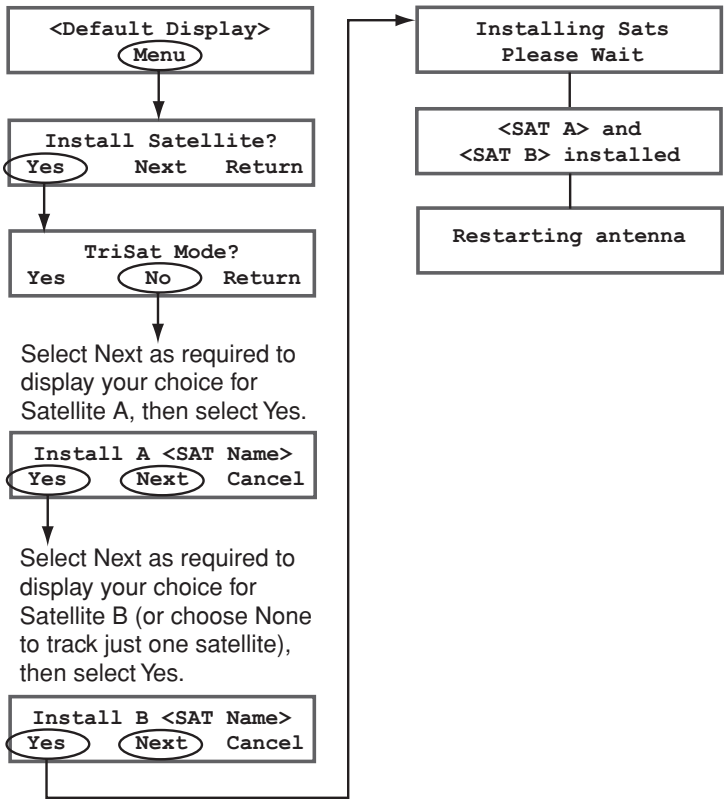


Step 3b - Set Up DualSat Mode

Use the flowchart in *Figure 3-6* to set the MCP to track satellites in DualSat Mode.

TIP: *A complete list of satellites in the linear satellite library is provided in Figure 3-3 on page 28.*

Figure 3-6 Setting DualSat Mode



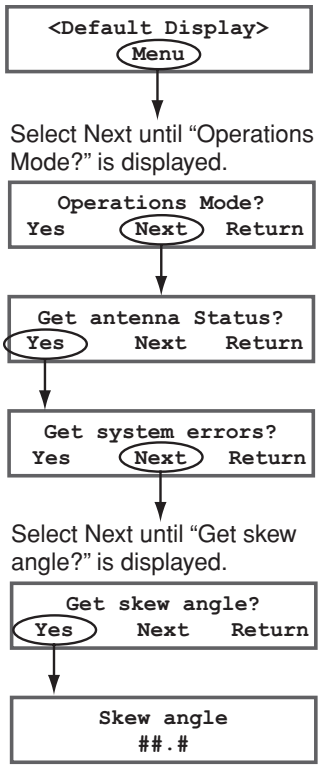
Linear Version Only

Step 4 - Determine the Skew Angle (DualSat Mode Only)

Use the flowchart in *Figure 3-7* to determine the skew angle for the selected satellite.

TIP: *Sky Mexico subscribers can also refer to* ***Figure 1-5 on page 10*** *for approximate skew setting for the PAS_9 satellite.*

Figure 3-7 Determining the Skew Angle



Step 5 - Adjust the Skew Angle

Once you have determined the proper skew angle, follow the steps below to adjust the antenna's LNB skew angle.

CAUTION

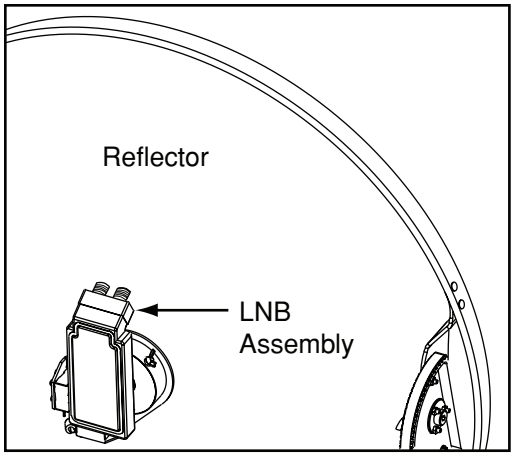
To avoid bodily injury, be sure to turn off the antenna and disconnect power to all wired components.

1. Turn off the antenna and disconnect power to all wired components.

2. Using a Phillips-head screwdriver, remove the screws securing the radome. Then remove the radome and set it aside in a safe place.

3. Locate the LNB assembly on the back of the antenna reflector.

Figure 3-8 Location of LNB on Back of Antenna Reflector



4. Loosen the two choke feed wing screws. The location of the wing screws varies according to TracVision model. Refer to *Figure 3-9* and *Figure 3-10*.

Figure 3-9 TracVision M5 Wing Screws

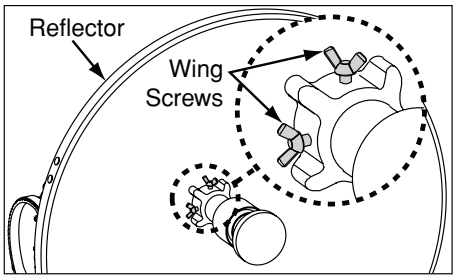
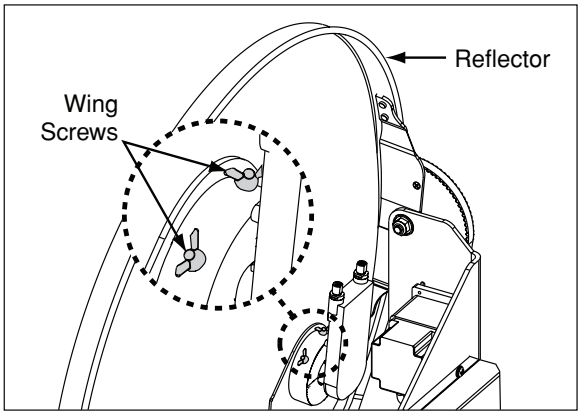


Figure 3-10 TracVision M7 Wing Screws

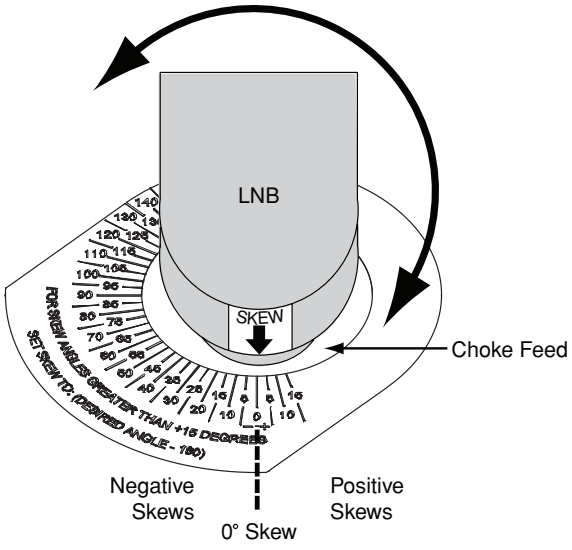


5a. TracVision M5 Only - Adjust the LNB clockwise or counter-clockwise, until the skew arrow on the LNB points to the skew angle that you determined earlier. If the skew angle is greater than +15° subtract 180 to get the equivalent negative skew angle and set the LNB to that angle instead.

IMPORTANT!

Be sure to keep the LNB fully inserted into the choke feed to ensure optimum performance.

Figure 3-11 TracVision M5 LNB Skew Angle Adjustment

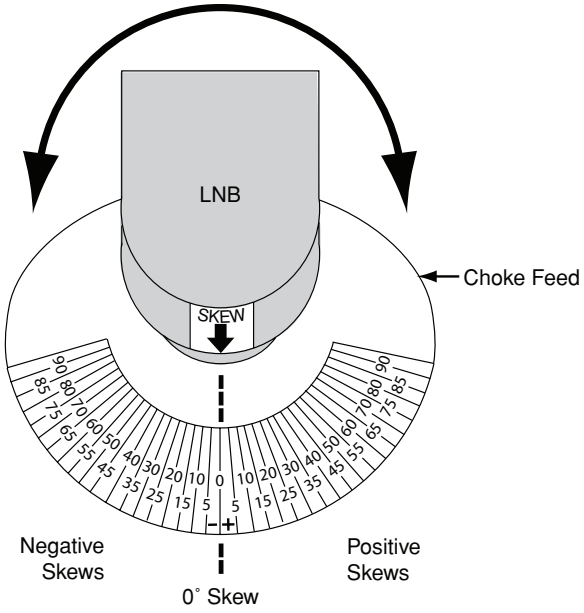


5b. TracVision M7 Only - Adjust the LNB clockwise or counter-clockwise, until the skew arrow on the LNB points to the skew angle that you determined earlier.

IMPORTANT!

Be sure to keep the LNB fully inserted into the choke feed to ensure optimum performance.

Figure 3-12 TracVision M7 LNB Skew Angle Adjustment



6. Tighten the wing screws.

7. Reinstall the radome.

Setting the MCP to Track Different Satellites (Circular Version Only)

If you wish to change which satellites your TracVision M5/M7 system tracks, you must perform the following:

1. Update latitude and longitude data
2. Select a tracking mode

3a. Set up Automatic TriSat Mode

3b. Set up Manual TriSat Mode

3c. Set up DualSat Mode

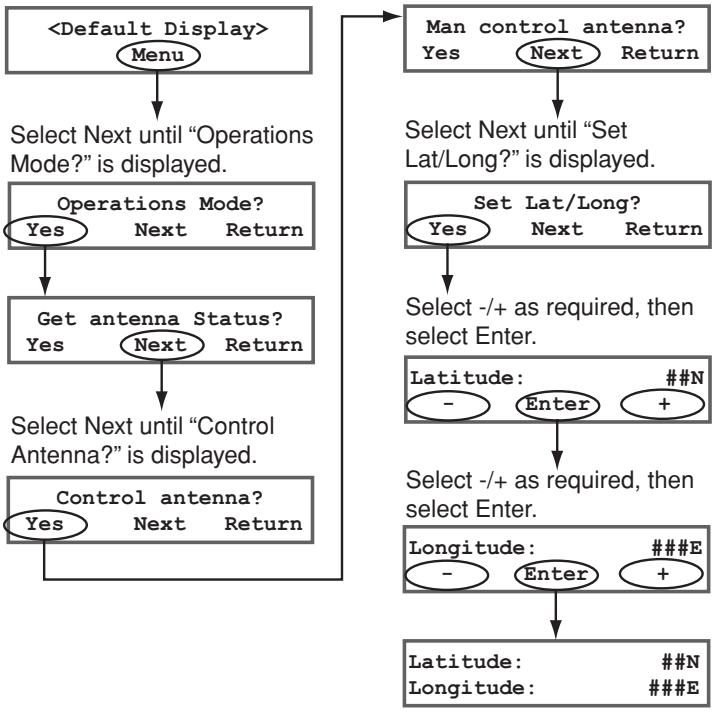
TIP: *Be sure to only install satellites that your TracVision M5/M7 can track in your geographic location. For your convenience, KVH provides links to several websites that offer satellite coverage information. Simply visit our website at* ***www.kvh.com/footprint****.*

Step 1 - Update Latitude and Longitude Data

Use the flowchart in ***Figure 3-13*** to update your latitude and longitude data.

TIP: *For your convenience, you can determine your approximate latitude and longitude using the Position Grids provided in* ***"Appendix B" on page 73****.*

Figure 3-13 Updating Latitude and Longitude



Circular Version Only

Step 2 - Select a Tracking Mode

Automatic TriSat Mode

If you set the system to Automatic TriSat Mode the DIRECTV 101, 110, and 119 satellites will be installed. When set to Automatic TriSat Mode, the antenna automatically switches between a pair of DIRECTV satellites as the user changes channels on the receiver's remote control. The user sets the MCP to automatically switch between either the DIRECTV 101-110 satellite pair or the DIRECTV 101-119 satellite pair.

Manual TriSat Mode

If you set the system to Manual TriSat Mode, the DIRECTV 101, 110, and 119 satellites will be installed. When set to Manual TriSat Mode, the user can switch between the DIRECTV 101, 110, and 119 satellites with a single button press.

DualSat Mode

Most TracVision M5/M7 system configurations allow automatic satellite switching in DualSat Mode. When automatic switching is enabled, satellite switching occurs automatically while the user changes channels using the receiver's remote control. You can also use the MCP to manually switch between your selected pair of satellites with a single button press. In DualSat Mode, you can set up the system to track any two satellites from the circular satellite library (see *Figure 3-14 on page 39*).

Figure 3-14 Circular Satellite Library

Satellite Service	Satellite Location	Installation Name
ASIASAT 4	122.2° E	ASIASAT*
DIRECTV	72.0° W	DSS_72
	101.0° W	DSS_101
	110.0° W	DSS_110
	119.0° W	DSS_119
DIRECTV Latin America	95.0° W	GALAXY3CN*
DISH Network	61.5° W	ECHO_61
	110.0° W	ECHO_110
	119.0° W	ECHO_119
	148.0° W	ECHO_148
ExpressVu	82.0° W	EXPRESSVU
	91.0° W	EXPRESSTV

***NOTE:** Reception of these satellites requires additional hardware. Please contact your local KVH-authorized dealer or KVH Technical Support for details.*

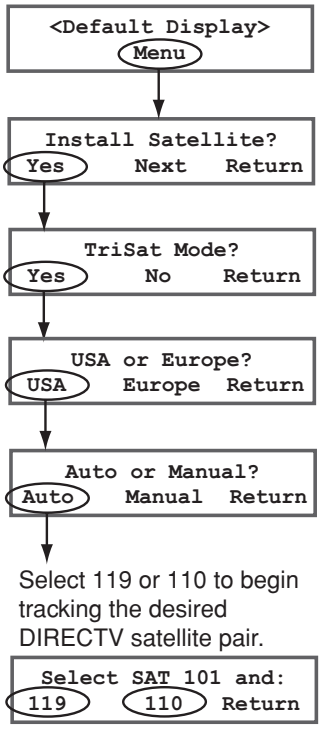
***NOTE:** If the satellite you wish to track is not listed, you can use a PC to add one or two special user-defined satellites. See "Appendix C" on page 77 for details.*

Circular Version Only

Step 3a - Set Up Automatic TriSat Mode

Use the flowchart in *Figure 3-15* if you wish to set the MCP to track the DIRECTV 101, 110, and 119 satellites in Automatic TriSat Mode.

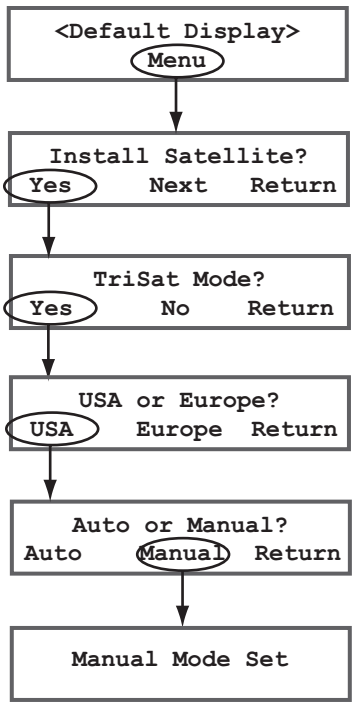
Figure 3-15 Setting Automatic TriSat Mode



Step 3b - Set Up Manual TriSat Mode

Use the flowchart in *Figure 3-16* if you wish to set the MCP to track the DIRECTV 101, 110, and 119 satellites in Manual TriSat Mode.

Figure 3-16 Setting Manual TriSat Mode

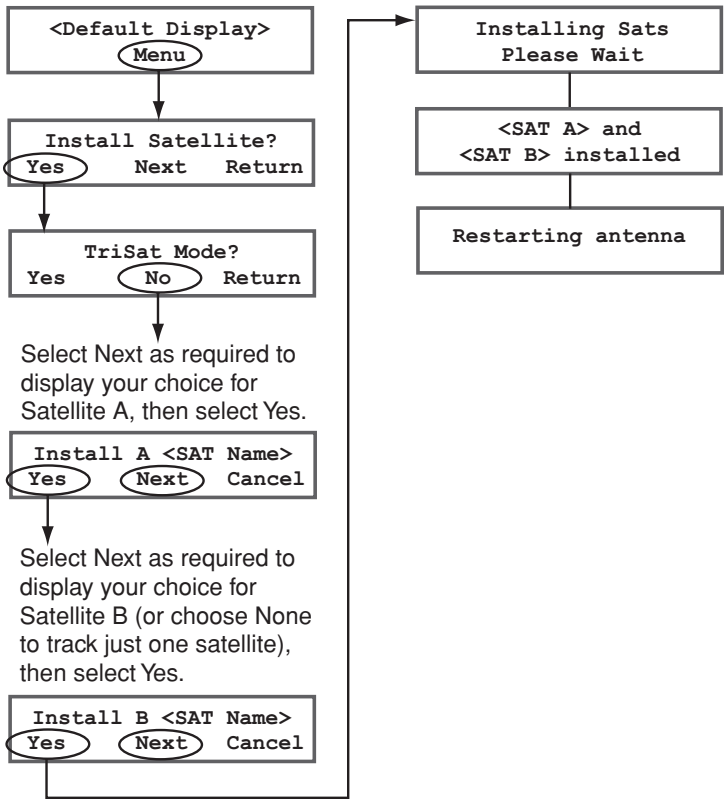


Circular Version Only

Step 3c - Set Up DualSat Mode

Use the flowchart in *Figure 3-17* if you wish to set the MCP to track satellites in DualSat Mode. For a list of satellites in circular satellite library, see *Figure 3-14 on page 39*.

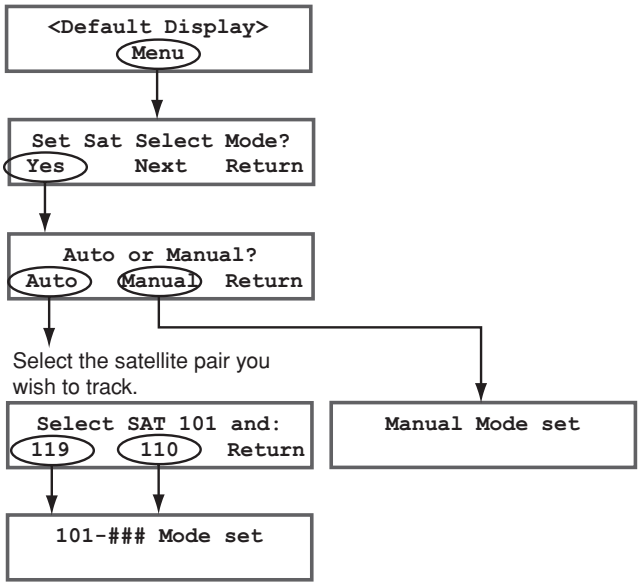
Figure 3-17 Setting DualSat Mode



Changing TriSat Modes (Circular Version Only)

Use the flowchart in *Figure 3-18* if you wish to change which TriSat Mode is used for tracking the DIRECTV 101, 110, and 119 satellites.

Figure 3-18 Changing TriSat Modes



Updating Latitude and Longitude Data

Use the flowchart in ***Figure 3-19*** to update your latitude and longitude data.

TIP: *For your convenience, you can determine your approximate latitude and longitude using the Position Grids provided in* ***"Appendix B" on page 73****.*

> ***IMPORTANT!***
>
> You must restart the antenna after performing this procedure. For more information on restarting the antenna, see ***"Restarting the Antenna" on page 50***.

Figure 3-19 Updating Latitude and Longitude Data